IN THE CLAIMS

Please cancel claims 1-33, and insert claims 34-55 as presented on the attached sheets.

REMARKS

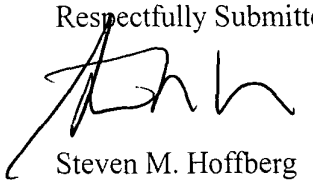
Claims 34-55 are in the application. Claim 34 is in dependent.

The Title of the Invention and Abstract of the Disclosure have been amended to reflect the subject matter of the newly added claims.

The Specification has been amended to reflect the status of related applications.

An early examination on the merits is respectfully solicited.

Respectfully Submitted,



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34. (New) A surface acoustic wave modulator, comprising:

(a) a substrate, capable of propagating an acoustic wave therein and a surface;

(b) a transducer, for transducing an electric signal to an acoustic wave propagating in the substrate along a path, the acoustic wave having a width with respect to the surface of the substrate; and

(c) a wave modulating element, disposed along the path of the acoustic wave on the surface of the substrate, the wave modulating element having a characteristic acoustic modulation dependent on a portion of the width of the acoustic wave over which the wave modulating element is situated, and having a width less than the width of the acoustic wave.

35. (New) The modulator according to claim 34, further comprising an element which produces an acoustic wave having a uniform acoustic energy pattern across its width from an acoustic wave having a non-uniform acoustic energy across its width.

36. (New) The modulator according to claim 34, comprising a plurality of wave modulating elements, acting together to selectively modify a phase and amplitude of the acoustic wave to quadrature amplitude encode information on the acoustic wave.

37. (New) The modulator according to claim 34, wherein the wave modulating element comprises a set of members disposed bilaterally symmetrical with respect to the path of the acoustic wave.

38. (New) The modulator according to claim 34, further comprising an additional wave modulating element having a width narrower than the wave modulating element, disposed along the path of the acoustic wave on the surface of the substrate in series with the wave modulating element, the additional wave modulating element having a characteristic acoustic modulation dependent on a portion of the width of the acoustic wave over which the wave modulating element is situated.

39. (New) The modulator according to claim 38, wherein the wave modulating element selectively modulates the acoustic wave in a QAM-4 constellation pattern, and the additional wave modulating element selectively submodulates the QAM-4 constellation pattern to a QAM-16 modulation pattern.

40. (New) The modulator according to claim 38, wherein N additional wave modulating elements are provided, which together with the wave modulating element selectively modulate the acoustic wave in a QAM-2^{2N} modulation pattern.

41. (New) The modulator according to claim 34, wherein the modulator element comprises one or both of (a) a one-third beam width element situated centrally along the acoustic wave path and (b) two one-third beam width elements situated laterally symmetric on each side of the acoustic wave path.

42. (New) The modulator according to claim 34, wherein the modulator element

comprises one or both of (a) a one-third beam width element situated centrally along the acoustic wave path, having a characteristic delay of $\pi/2$ radians and (b) two one-third beam width elements situated laterally symmetric on each side of the acoustic wave path together having a characteristic delay of $\pi/4$ radians.

43. (New) The modulator according to claim 34, wherein the wave modulating element comprises one or both of (a) a one-third beam width element situated centrally along the acoustic wave path, having a characteristic delay of $\pi/2$ radians and (b) two one-third beam width elements situated at the outer thirds of the acoustic wave path together having a characteristic delay of $\pi/4$ radians, further comprising an additional wave modulating element comprising one or both of (c) a one-ninth beam width element situated centrally along the acoustic wave path, having a characteristic delay of $\pi/2$ radians and (b) two one-ninth beam width elements situated at the lateral fourth and sixth ninths of the acoustic wave path, together having a characteristic delay of $\pi/4$ radians.

44. (New) The modulator according to claim 34, further means for equalizing a phase delay of portions of said acoustic beam across the width of the acoustic beam, after passing said wave modulating element.

45. (New) The modulator according to claim 34, further comprising means for splitting the acoustic wave after passing said wave modulating element, wherein a portion of said split wave is subjected to a operation of a further wave modulating element for modulating the acoustic wave.

46. (New) The modulator according to claim 34, further comprising means for equalizing a phase delay of respective portions of the acoustic wave width; a phase delay pad disposed along the propagation axis within the equalized beam width, occupying less than the entire equalized beam width; and a summer for summing the acoustic power of the equalized acoustic wave after interaction with the phase delay pad, wherein summer outputs a split portion of the acoustic wave and the summed acoustic power of the equalized acoustic wave.

47. (New) The modulator according to claim 34, further comprising a trackchanger disposed along a path of the acoustic wave, for altering a propagation direction of the acoustic wave.